REMARKS

In the Final Office Action, the Examiner noted that claims 28-52 are pending in the application and that claims 28-52 stand rejected. By this response claims 53 and 54 are added and claims 28 and 48 are amended to better clarify the Applicant's invention and not in response to prior art. All other claims continue unamended.

In view of the amendments presented above and the following discussion, the Applicant submits that none of the claims now pending in the application are anticipated under the provisions of 35 U.S.C. §102 or obvious under the provisions of 35 U.S.C. §103.

Objections

The Examiner has objected to the drawings under 37 CFR 1.83(a) noting that the drawings must show every feature of the invention specified in the claims. The Examiner alleges the alarm processing system mentioned in claim 46 must be shown or the feature(s) cancelled from the claim(s).

The Applicant would like to respectfully point out to the Examiner that the alarm processing system of the present invention is resident and performed by the controller of the present invention. The controller is depicted by the Applicant as a general purpose computer that is programmed to perform various control functions (including the alarm processing function of the present invention) in accordance with the present invention. In support of the Applicant's assertion, in the Specification, the Applicant specifically recites:

> "The controller 104 may take any of a variety of forms, such as an embedded controller, dedicated to the associated network element, or it may be a controller such as a DACScan 2000 ™ as described in "Understanding SONET/SDH Standards and Applications, Ming-Chwan Chow, pp. 7-1 through 7-40, Andan Publisher, New Jersey, 1995, which is hereby incorporated by reference." (See Specification, page 7, lines 25-29).

In response to the Examiner's objection, the Applicant is submitting herein an amended, replacement FIG. 1 to include an identification block and reference number identifying the alarm processing system of the present invention. In addition, the Specification has been amended to include disclosure supporting the addition of the block and reference number.

The Applicant respectfully submits that the addition of the alarm processing block in FIG. 1 and the amendment to the Specification do not comprise new subject matter.

Specifically, in the Specification, the Applicant discloses:

> "A telecommunications network in accordance with the principles of the present invention includes one or more controllers that automatically determine the physical interconnectivity between individual ports within the telecommunications network. An identification message, including the identification information related to both the sending and receiving ports, is transmitted from each port to its adjacent neighbor and, when the two ports converge on a view of their interconnectivity, that interconnectivity information is stored for each port within the one or more controllers. By accumulating the interconnectivity information for all the links within the network, a network management system may produce an accurate network map that may be employed for provisioning network resources and for responding to network alarms." (See Specification, page 6, lines 15-24).

As evident from the disclosure above, the Applicant teaches how one or more controllers determine the interconnectivity between individual ports and that this information is used, in one embodiment to respond to network alarms. The Applicant further discloses:

> "Once the link identification has been established in this manner, the link identification information may be employed to form, with a network management system, for example, a network map. The network map could then be used to provision the bandwidth capacity of the various links within the network or to respond to network alarms by correlating network alarms and isolating failures. Additionally, the system could respond by re-routing data around a failed link, for example." (See Specification, page 11, lines 7-12).

As evident from the disclosure above, in various embodiments of the invention, the alarm processing is performed by the controller of the Applicant's invention and as such the block added to FIG. 1 is to be representative of a method or process of alarm processing performed by the controller of the present invention and not as a separate component.

Having made these changes, the Applicant submits that the basis for the Examiner's objection to the drawings has been removed. As such, the Applicant respectfully requests that the Examiner's objection to the drawings be withdrawn.

Rejections

A. 35 U.S.C. § 102

The Examiner rejected claims 28-29, 33-44 and 48-50 under 35 U.S.C. 102(b) as being anticipated by Liang et al. (United States patent 5,732,086 issued November 7, 1995, hereinafter "Liang"). The rejection is respectfully traversed.

The Examiner alleges that Liang discloses a method and network comprising at least two network devices; and at least one controller including detecting network modification; causing one network device to transmit a first port ID message to a successive network device including one network device's perception of the link; receiving a second port ID message from the successive network device including the successive network device's perception of the link; compare the perceptions; and update if perception does not agree. The Applicant respectfully disagrees.

The teachings of Liang fail to teach, disclose or suggest at least the Applicant's claim 28, which specifically recites:

> "A telecommunications network, comprising:
> at least two network devices, each of said network devices comprising at least one network port;
> at least one communications path interconnecting the network ports of each of said at least two network devices, each combination of

communications path and interconnected network ports forming a network link; and

at least one controller in communication with said at least two network devices, said at least one controller configured to perform the steps of:

detecting a network modification within said telecommunications network;

causing at least one of said network devices to transmit a first port identification message to a successive network device in said communications path, said first port identification message including information regarding at least said at least one originally transmitting network device's perception of the successive network device's network links;

receiving a second port identification message from said successive network device, said second port identification message including information regarding at least said successive network device's perception of its own network links;

comparing said at least one originally transmitting network device's perception of the successive network device's network links with said successive network device's perception of its own network links; and

updating, if said at least one originally transmitting network device's perception of the successive network device's network links does not agree with said successive network device's perception of its own network links, said at least one originally transmitting network device's perception of the successive network device's network links to agree with said successive network device's perception of its own network links."

"Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim" (Lindemann Maschinenfabrik GmbH v. American Hoist & Derrik Co., 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1983)) (emphasis added).

There is absolutely no teaching, disclosure or suggestion in Liang for various aspects of the Applicant's invention. For example, in at least claim 28, the Applicant claims a controller adapted to "causing at least one of said network devices to transmit a first port identification message to a successive network device in said communications path, said first port identification message including information regarding at least said at least one originally transmitting network device's perception of the successive network device's

network links." In support of at least claim 28, the Applicant, in the specification, specifically recites:

> "In accordance with the principles of the present invention, the controller 104, under various circumstances including network modifications such as the addition of a port to the network, the initiation of a port, or the reconfiguration of a link, initiates the transmission of identification messages from each of the ports to the respective ports to which they are connected. The identification message provides an indication of the transmitting port's, "view", "perception", or "presumption" of the link's configuration. The transmitting port's view of the link configuration is compared to the receiving port's view of the link configuration. As will be described in greater detail below, the transmitting and receiving ports exchange their views of the link configuration until their views converge". (See Specification, page 8, lines 16-24).

The invention of the Applicant is directed, at least in part, to providing a verification of at least the links interconnecting a sending node and a successive node. Because a sending node provides its perception of the link to a successive node, the link may be identified (verified) by the successive node. In support of this aspect of the invention, the Applicant, in the Specification, specifically recites:

> "If the identification messages from the two neighboring ports agree, that is, if the remote and local port identifications of each port are reciprocal, the link is identified, in that one or more controllers have determined the interconnectivity of the two ports that comprise the link. The controllers retain this link identification information until some change in the network configuration initiates a re-identification. If, however, the identification messages from the two neighboring ports do not agree, the controller associated with the local port will update the "remote" potion of its identification message and re-send the message to its neighbor as an acknowledgement of the updated remote port identification information. (See Summary, page 4, lines 7-15).

In accordance with the disclosure presented above and at least the Applicant's claim 28, a controller of the Applicant's invention causes a node to transmit an identification message to nodes to which it is connected. The identification message includes at least the sending nodes view, **perception** or

presumption of the receiving nodes link configuration (connection). A receiving node responds to the sending node by transmitting to the sending node its own view of its links. The two views of the links are compared. If the sending node and receiving node's perceptions agree, at least the links interconnecting the nodes are verified and the system enters a state whereby the process essentially idles, awaiting an event, such as an update in the remote port's identification, modifications to the local port's identification, or the termination of the connection to the remote port. (See Specification, page 10, lines 21-23).

In the event of a difference between the views, the sending node's view of its neighboring node's links is updated to match the neighboring node's own perception of its links. The sending node may then resend the message to the successive node as an acknowledgement of the updated remote port identification information and to identify and verify the links.

As such, the original sending node is informed of the links (connections) of successive nodes by transmitting its perception of the neighboring nodes' links and either confirming its views or updating its views according to a reply from each of its neighboring nodes. The Applicant discloses in the Specification that the perception of the sending node may be based upon previously received messages from the receiving port or other sources, or that the field may be left blank. (See Specification, page 8, line 30 through page 9, line 1). ***As such, in the Applicant's invention, a transmitting node transmits its perception of a neighboring node's configuration to the neighboring node. The neighboring node responds by sending to the transmitting node the configuration parameters that the neighboring node knows as its own. The original transmitting node compares the configuration parameters that it believed existed for the neighboring node with the configuration parameters received from the neighboring node regarding the neighboring node's own parameters, and if a difference exists, the original transmitting node updates it's perception of the configuration parameters of the***

neighboring node to correspond to the configuration parameters received from the neighboring node.

In contrast to the Applicant's invention and as pointed out by the Examiner, Liang teaches that, in the event of a change in a system, a Self-Positioning mode causes each initializing node to transmit an INIT message. (See Liang, col. 6, lines 1-4). The INIT message of Liang does not contain any perception or view of the initializing nodes connections of a neighboring node. (See Liang, col. 5, lines 35-43). As such, the invention of Liang cannot perform the identification or verification of the links as taught and claimed by the Applicant's invention. ***More specifically, in Liang, an initializing node transmits an INIT message to neighboring nodes. The neighboring nodes that receive the INIT message respond to the initializing node and inform the initializing node as to which communication ports the neighboring nodes received the INIT message. As such, the initializing node compiles a table of its configuration parameters and broadcasts that list to all other nodes. Liang does not teach transmitting a perception and updating a perception if not confirmed as in the invention of the Applicant.***

In Liang, nodes receiving the INIT message send an Acknowledge message to all the nodes. (See Liang, col. 6, lines 55-65). The Acknowledge message indicates the identifier of the node originating the Acknowledge message, the link port over which the Acknowledge message is being sent to the node which originated the INIT message, the identifier of the node that sent the INIT message, and the link over which the INIT message was sent. (See Liang, col. 5, lines 34-43).

Upon receiving the Acknowledge message, an initializing node is enabled to insert node connection data into its row of topology. (See Liang, col. 7, lines 1-3). The invention of Liang fails to teach, suggest or disclose "causing at least one of said network devices to transmit a first port identification message to a successive network device in said communications path, said port identification message including information regarding at least said at least one **network**

device's perception of the successive network device's network links" as claimed in at least the Applicant's claim 28. The INIT message in Liang does not contain the sending nodes perception of its neighboring nodes' links.

In even further contrast to the Applicant's invention, at least with respect to claim 28, Liang fails to teach, suggest or disclose "updating, if said at least one network device's perception of the network links does not agree with said successive network device's perception of its network links, said at least one network device's perception of the network links to agree with said successive network device's perception of its network links" as taught and claimed by the Applicant's invention. In the specification the Applicant specifically discloses"

> "Specifically, in an illustrative embodiment, the identification message include the information set forth in the illustrative conceptual diagram of Figure 2. In this illustrative embodiment, the transmitting port includes its own port identity and it's best estimate of the receiving port's identity. This estimate may be based upon previously received messages from the receiving port or other sources, or the field may be left 'blank'". (See Specification, page 8, line 27 through page 9, line 1).
>
> "If it is determined that the remote port's link identification message has been received, the process proceeds to step 320 where the remote and local link identification messages are compared, and, if they are not the same, the process proceeds to step 321, where the local port updates its link identification information." (See Specification, page 10, lines 14-17).

It is evident from the Applicant's disclosure that the Applicant's invention is directed at least in part to an automatic telecommunications link identification system wherein a first network device transmits its own topology information and its perception of a neighboring device's topology to the neighboring device and the neighboring device returns its own true topology information to the first device. The perceptions are compared, and if different, the first network device's perception is corrected. In contrast to the Applicant's claimed invention, Liang teaches:

> "Connecting--when the node tells other nodes in the network about itself, and conversely, finds out what other nodes are in the network. This is accomplished by each node sending to "All nodes" the topology about itself (i.e. an Update message). This also includes iterative forwarding of each node's "topology row" throughout the network. Redundant traffic is avoided by each interim node forwarding the information only when it differs from the content of its topology table. If the contents match (meaning the message has been seen before), the message is discarded. The topology information for a given node comes only from the node itself.." (See Liang, col. 3, lines 48-60).
>
> "Each of nodes N1-N9 is initially responsible for deriving and updating its particular row of topology table 26. Then that row is communicated to all other nodes. Each node has no responsibility for either deriving or updating any row of topology table 26 other than its own designated row." (See Liang, col. 5, lines 21-25).

In Liang, a first network device does not transmit to a successive device its perception of the successive device's identity. In addition, in Liang, the transmitting network device does not update its link identification information regarding the successive device. In contrast, Liang is directed to a multi-mode network wherein an originating node transmits an ID message over each interconnect link to construct a topology map for itself, including which links it uses to connect to a neighbor and which links each neighbor uses to connect back. This information is then transmitted to all nodes in the system, so that all nodes in the system are enabled to thereafter identify the topology of the system. (See Liang, Abstract). As such, a network device in Liang receives topology information from already established devices and updates its own topology map. Thus it is clear to see that the invention of Liang in now way teaches, discloses, or suggests at least "updating, if said at least one network device's perception of the network links does not agree with said successive network device's perception of its network links, said at least one network device's perception of the network links to agree with said successive network device's perception of its

network links" as claimed in at least the Applicant's claim 28 and taught throughout the Applicant's specification.

More simply stated, in the Applicant's invention, a communication is initiated between two nodes by transmitting an initiating nodes perception of successive nodes' links to the respective successive nodes. In response, the respective successive nodes transmit their respective perceptions of their own links. If the initiating node's perception of a successive nodes' configuration parameters does not agree with the successive nodes' perception of its own links, the perception (views, topology) of the initiating node regarding the successive nodes' topologies are updated to reflect the successive nodes' views of their own topology.

In contrast, in Liang, an initiating node transmits an INIT message through all of its ports. The INIT message contains the identifier of the node sending the INIT message, the identifier of the link port over which the INIT message is being sent, and the identifier of the node to which the INIT message is eventually destined. (See Liang, col. 5, lines 34-43). Not until after a node learns its complete topology (i.e., receives acknowledgement message from all connected nodes) from its neighbors does a node send information regarding its topology to all the nodes in the system. Upon receiving the topological information from the sending node, the receiving nodes update their topological maps to reflect the topology of the sending node from which the topological information was received.

Thus, the Applicant respectfully submits that the invention of Liang in no way teaches, discloses, or suggests the invention of the Applicant at least with respect to the Applicant's claim 28.

Therefore, the Applicant submits that claim 28 is not anticipated by the teachings of Liang and, as such, fully satisfies the requirements of 35 U.S.C. § 102 and is patentable thereunder.

Likewise, independent claim 48 recites similar relevant features as recited in claim 28. As such, the Applicant submits that independent claim 48 is not

anticipated by the teachings of Liang and also fully satisfies the requirements of 35 U.S.C. § 102 and is patentable thereunder.

Furthermore, dependent claims 29, 33-44 and 49-50 and new claims 53-54, depend either directly or indirectly from independent claims 28 and 48 and recite additional features therefor. As such and for at least the reasons set forth above, the Applicant submits that none of these claims are anticipated by the teachings of Liang. Therefore the Applicant submits that all these dependent claims also fully satisfy the requirements of 35 U.S.C. § 102 and are patentable thereunder.

The Applicant reserves the right to establish the patentability of each of the claims individually in subsequent prosecution.

B. 35 U.S.C. § 103(a)

The Examiner has rejected claims 30-32, 45, 47 and 52 under 35 U.S.C. § 103(a) as being unpatentable over Liang in view of Lu (United States patent 5,815,490). The rejection is respectfully traversed.

Claims 30-32, 45, 47 and 52 depend either directly or indirectly from independent claims 28 and 48 and recite additional features therefor. The Examiner applied Liang as described above for the rejections of independent claims 28 and 48. For at least the reasons disclosed above, the teachings of Liang do not teach, suggest, or otherwise render obvious the Applicant's invention, at least with regard to the Applicant's independent claims 28 and 48. Therefore, at least because Liang does not teach, suggest, or describe the invention of the Applicant regarding at least claims 28 and 48, the Applicant submits that Liang also do not teach, suggest, or describe the Applicant's claims 30-32, 45, 47 and 52, which depend from independent claims 28 and 48 and as such, do not render the Applicant's claims 30-32, 45, 47 and 52 obvious. In addition, the Examiner correctly concedes that Liang does not disclose that the network is a bi-directional ring wherein the system includes SONET ports, SDH ports and optical paths, and network mapping is used to configure bandwidth.

As such the Examiner cites Lu. It should be noted that the teachings of Lu alone also do not teach, suggest, or describe the invention of the Applicant, at least with regard to claims 28 and 48. The Lu reference teaches a method of managing a telecommunication subnetwork system. In Lu each of the network elements receives and stores an identical ring table. (See Lu, Abstract) It is clear, however, that the teachings of Lu, alone, also do not render obvious the Applicant's invention, at least with regard to claims 28 and 48.

Furthermore, the Applicant submits that there is absolutely no suggestion or motivation in any of the references to combine the teachings of Liang and Lu as suggested by the Examiner. The Applicant further submits that even if a suggestion to combine the references as suggested by the Examiner did exist (which the Applicant submits that no such suggestion exists), the Examiner's attention is directed to the fact that the alleged references, either singly or in any permissible combination, do not teach, suggest, or otherwise render obvious the Applicant's invention, at least with regard to the Applicant's independent claims 28 and 48. The substantial gap between the teachings of the Liang and the invention of the Applicant is not bridged by the teachings of Lu. Therefore, at least because the teachings of Liang and Lu, alone or in any allowable combination, do not teach, suggest or disclose the Applicant's claims 28 and 48, the Applicant further submits that the teachings of Liang and Lu, alone or in any allowable combination, also do not teach, suggest or disclose the Applicant's claims 30-32, 45, 47 and 52, which depend from the Applicant's independent claims 28 and 48.

Therefore, the Applicant respectfully submits that claims 30-32, 45, 47 and 52, as they now stand, fully satisfy the requirements of 35 U.S.C. § 103 and are patentable thereunder.

The Applicant reserves the right to establish the patentability of each of the claims individually in subsequent prosecution.

C. 35 U.S.C. § 103(a)

The Examiner has rejected claim 46 under 35 U.S.C. § 103(a) as being unpatentable over Liang in view of Yamasaki et al. (United States Patent 5,909,175, hereinafter "Yamasaki"). The rejection is respectfully traversed.

Claim 46 depends indirectly from independent claim 28 and recites additional features therefor. The Examiner applied Liang as described above for the rejections of independent claim 28. For at least the reasons disclosed above, the teachings of Liang do not teach, suggest, or otherwise render obvious the Applicant's invention, at least with regard to the Applicant's independent claim 28. Therefore, at least because Liang does not teach, suggest, or describe the invention of the Applicant regarding at least claim 28, the Applicant submits that Liang also do not teach, suggest, or describe the Applicant's claim 46, which depends from independent claim 28, and as such, does not render the Applicant's claim 46 obvious. In addition, the Examiner correctly concedes that Liang does not disclose an alarm processing system including rerouting communication resulting from the alarm.

As such the Examiner cites Yamasaki. It should be noted that the teachings of Yamasaki alone also do not teach, suggest, or describe the invention of the Applicant, at least with regard to claim 28. The Yamasaki reference teaches a connection switching circuit is disposed in each node of a ring system in which a first ring and second ring are provided with two communication lines which allow data to flow in a different direction respectively and is connected with a currently used passage and preliminary passage. (See Yamasaki, Abstract) It is clear, however, that the teachings of Yamasaki, alone, also do not render obvious the Applicant's invention, at least with regard to claim 28.

Furthermore, the Applicant submits that there is absolutely no suggestion or motivation in any of the references to combine the teachings of Liang and Yamasaki as suggested by the Examiner. The Applicant further submits that even if a suggestion to combine the references as suggested by the Examiner

did exist (which the Applicant submits that no such suggestion exists), the Examiner's attention is directed to the fact that the alleged references, either singly or in any permissible combination, do not teach, suggest, or otherwise render obvious the Applicant's invention, at least with regard to the Applicant's independent claim 28. The substantial gap between the teachings of the Liang and the invention of the Applicant is not bridged by the teachings of Yamasaki. As such, at least because the teachings of Liang and Yamasaki, alone or in any allowable combination, do not teach, suggest or disclose the Applicant's claim 28, the Applicant further submits that the teachings of Liang and Yamasaki, alone or in any allowable combination, also do not teach, suggest or disclose the Applicant's claim 46, which depends from the Applicant's independent claim 28.

Therefore, the Applicant respectfully submits that claim 46, as it now stands, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

The Applicant reserves the right to establish the patentability of each of the claims individually in subsequent prosecution.

D. 35 U.S.C. § 103(a)

The Examiner has rejected claim 51 under 35 U.S.C. § 103(a) as being unpatentable over Liang in view of Frey et al. (United States Patent 5,982,783, hereinafter "Frey"). The rejection is respectfully traversed.

Claim 51 depends directly from independent claim 48 and recites additional features therefor. The Examiner applied Liang as described above for the rejections of independent claim 48. For at least the reasons disclosed above, the teachings of Liang do not teach, suggest, or otherwise render obvious the Applicant's invention, at least with regard to the Applicant's independent claim 48. Therefore, at least because Liang does not teach, suggest, or describe the invention of the Applicant regarding at least claim 48, the Applicant submits that Liang also do not teach, suggest, or describe the Applicant's claim 51, which depends from independent claim 48, and as such, does not render the

Applicant's claim 51 obvious. In addition, the Examiner correctly concedes that Liang does not disclose that the protocol between the ports is LAPD.

As such the Examiner cites Frey. It should be noted that the teachings of Frey alone also do not teach, suggest, or describe the invention of the Applicant, at least with regard to claim 48. The Frey reference teaches switch distribution via an intermediary switching network wherein ports of a switching system are remoted from and interconnected with each other by an ATM network. (See Frey, Abstract). As such, it is clear that the teachings of Frey, alone, also do not render obvious the Applicant's invention, at least with regard to claim 48.

Furthermore, the Applicant submits that there is absolutely no suggestion or motivation in any of the references to combine the teachings of Liang and Frey as suggested by the Examiner. The Applicant further submits that even if a suggestion to combine the references as suggested by the Examiner did exist (which the Applicant submits that no such suggestion exists), the Examiner's attention is directed to the fact that the alleged references, either singly or in any permissible combination, do not teach, suggest, or otherwise render obvious the Applicant's invention, at least with regard to the Applicant's independent claim 48. The substantial gap between the teachings of the Liang and the invention of the Applicant is not bridged by the teachings of Frey. As such, at least because the teachings of Liang and Frey, alone or in any allowable combination, do not teach, suggest or disclose the Applicant's claim 48, the Applicant further submits that the teachings of Liang and Frey, alone or in any allowable combination, also do not teach, suggest or disclose the Applicant's claim 51, which depends from the Applicant's independent claim 48.

Therefore, the Applicant respectfully submits that claim 51, as it now stands, fully satisfies the requirements of 35 U.S.C. § 103 and is patentable thereunder.

The Applicant reserves the right to establish the patentability of each of the claims individually in subsequent prosecution.

Conclusion

Thus the Applicant submits that none of the claims, presently in the application, are anticipated under the provisions of 35 U.S.C. § 102 or obvious under the provisions of 35 U.S.C. §103. Consequently, the Applicant believes that all of these claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending n the application, it is requested that the Examiner telephone Jorge Tony Villabon, Esq. at (732) 530-9404 x1131 or Eamon J. Wall, Esq. at (732) 530-9404 so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,

E J Wall

Eamon J. Wall Attorney
Reg. No. 39,414

Dated: 9/2/03

CUSTOMER #26,291
MOSER, PATTERSON & SHERIDAN, LLP
595 Shrewsbury Avenue, Suite 100
Shrewsbury, New Jersey 07702
732-530-9404 - Telephone
732-530-9808 – Facsimile